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The Story of Spices¹

JOHN W. PARRY

Editorial Note

As was stated in a review of this book (*ECONOMIC BOTANY*, July-September, 1954), every school child learns, presumably, that Columbus discovered America as a result of his effort to find a new route to the Indies, the lands of spices, but that the full significance of this statement, very likely, is appreciated by few. The importance lies in the fact that for two or three hundred years, beginning about five centuries ago, spices were of such great importance to the peoples of Europe that efforts to obtain them led to the greatest period of exploration the world has ever known, and to wars between nations contending for control of the routes to the sources of spices, once those sources had been found by the Europeans. Other groups of plants—food plants, drug plants and timber trees, to mention only three—have been of greater importance for the welfare of mankind, but none of them has had so great a world-wide influence on the political destinies of man as did spices. References to this role of spices are abundant in the popular literature on economically important plants, but nowhere else, at least in recent years, has the story been brought together and so admirably presented in delightful reading style as in this book. Excerpts, totaling 20 pages of the book, and abstracts of other parts constitute the following condensed version. So much more is contained in the book, however, that the student of ethnobotany, particularly of its historical aspects, will want to read the original in its entirety.

SPICES IN THE ANCIENT WORLD

"In the beginning, untouched and undisturbed save by the hand of God, the cumin and the anise of Egypt gave up their scent to the gentle Mediterranean breezes which cooled that arid land. In neighboring Asia, sweet marjoram grew and unknown monsoons brought rains to

wet the cardamom and cinnamon of Malabar and Ceylon, while away in the volcanic islands of the Moluccas the fragrant cloves and nutmegs were fruiting on the mountain sides. How long it was before man, struggling through the mists of the primeval world, came to know and use these and all other aromatic plants, we cannot tell, but he must have gathered early the leaves, fruits, seeds, and roots of fragrant herbs common to his locality, and attributed to each a special virtue in his clouded scheme of things".

"And so . . . began the uses and customs which have endured through the ages—spices for food, spices for healing, and spices to placate the gods".

"Beyond these assumptions about the thoughts and practices of primitive man we cannot go. The stone implements and cave drawings tell us something about these early people and indicate the observing and inventive nature of their minds, but give us nothing on which to base the story of the spices in those very remote times. Not until after the passage of thousands of years did men develop a system of writing, and for the earliest records, we must go to the fertile valleys of the Euphrates, the Tigris, and the Nile".

There we find the ancient cultures of the Assyrians, the Babylonians and the Egyptians. According to translations of tablets now in the British Museum, the Assyrian gods drank a wine of sesame which thus is the earliest mentioned herb on record.

"Sesame was a source of food, wine, and oil, and its production was a mat-

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ter for royal supervision and attention . . . this seed was often a subject of contract and accounting, as is shown by the references to sesame on tablets and deeds now in the Babylonian room of the British Museum. One of these covers a loan of silver and sesame seed; another records an allowance of food, drink, and sesame seed . . . ; and still another covers a loan of silver and sesame seed There is also a tablet of accounts concerning dates and sesame seed. All belong to the 6th century before Christ ”.

“Throughout the years of Babylonian history, sesame seed was highly prized for its practical uses. It found favor for the making of sesame cakes, dainties, wine, and brandy. Sesame oil was used as a food, in medicine, and in the preparation of toilet requisites. Its skin-soothing properties made it most acceptable for oiling the body, and it was an excellent vehicle for perfumes. Herodotus, Greek historian (c. 484–425 B.C.), said it was the only oil used by the Babylonians. And Theophrastus, Greek scholar and famed plant student (c. 372–288 B.C.), commenting on sesame oil, said it was ‘specially receptive’ for the making of perfumes, and particularly rose perfume ‘because of its viscid quality; and, when subjected to fire, it gives out a smell of sesame ”.

“According to Herodotus, on one occasion sesame prevented the castration of a number of innocent boys. Periander, Tyrant of Corinth (665–585 B.C.), forcibly sent three hundred sons of noble Coreyraean families to Ayattes to become eunuchs. On their way to Sardis, their guards put in at Samos, and the Samians learning what was in store for the boys hurried them into the temple of Diana where they took sanctuary. Since the Corinthian guards could not enter the temple and take the boys, they stopped food supplies from reaching them. To prevent the boys being

forced to surrender through hunger, a festival was originated by the Samians which called in part for choirs of youths and virgins to stand about the temple holding cakes of sesame in their hands which the unfortunate boys might snatch. The observance of the festival was kept going for so long a time that the Corinthian guards gave up their vigil and left the city, and then the Samians returned the boys to their parents in Coreyra ”.

The Assyrians, a war-like people on both sides of the Tigris, established themselves about 3000 B.C., and among the 200 or so plants known to Assyrian doctors and chemists, the herbs cardamom, cumin, dill, fennel, origanum, thyme, saffron and sesame have been identified. And in the garden of one of the kings of Babylon, cardamom, coriander, dill, garlic, onion, thyme and saffron have been recorded.

“The aromatic plants were early employed in fumigation. It was natural that the sweet fragrance of the spices should have been associated with purity by the ancients. To them that which was foul-smelling would be a manifestation of evil, only to be combatted and overcome by the clean sweetness of the aromatics, and so, for cleansing purposes, the spices found great favor in the eyes of the priests. An early example of this might be that of Gudea, Patesi of Lagash (c. 2450 B.C.), who, in preparation for the building of a temple, purified the city by special rites and kindled a fire of aromatic woods to make a sweet savor for the gods. And it is probable that this was the beginning of the practice of using spices to fumigate the streets of cities before royal visits, and to ward off disease in times of plague as was done in Europe during the Middle Ages ”.

“Spice plants played a part in many of the incantations, magical rites, and ceremonies performed by the priests in

behalf of those plagued with sickness or suffering from spells and bewitchments. In the second tablet of the Maklu series of Assyrian incantations addressed chiefly to the Fire-god, the performance of the ritual was to be accompanied by the burning of the flower of sesame. In the fifth tablet, mint and cassia play a prominent part. In the sixth tablet of the Sharpu series, addressed to the god Marduk in behalf of a man whom a demon had plagued with sickness, the priest was to cast into the fire a pod of garlic, certain seeds, and other substances. In other series of incantations, sesame wine, pleasant odors, and oils were to be set before the gods if the suppliants were to gain absolution and purity. On the occasion of the illness of the Babylonian king Shamash-shum-ukin (668-648 B.C.), twelve sesame cakes were called for in the incantation for the hand-raising prayer to Sin, the moon-god. He recovered only to burn to death later in his own palace".

"In their way of life, the Babylonians were a people fond of magnificence. They consumed lots of spices, and the spice trade was a major and lucrative business in Babylon. To her markets, the spices made their way by boat and caravan from widely separated points, and the merchandising of spices and spice products in this ancient city was great enough to merit mention with her trade in gold, silver, and precious stones, in the 18th chapter of The Revelation of St. John the Divine".

"The Egyptians believed the spirit returned to the body of the deceased, and, as far back as the 4th millennium before Christ, the bodies of kings and other highly placed persons were preserved against decay after death by a system of mummification which, in time, became quite elaborate. The spices first used in the mummifying process may have been anise and cumin, and perhaps sweet marjoram. Later, when cinna-

mon and cassia found their way into Egypt, these two barks were among the chief embalming spices".

In describing one of the three methods of embalming, Herodotus tells us that the bodies of the deceased were filled with "the purest myrrh, cassia, and every other sort of spicery except frankincense". He "does not mention the use of cassia or other spices in his description of the second and third methods of embalming which might indicate the high cost of spices, particularly those which had to be imported, in early Egyptian times. Cinnamon and cassia are not native to Egypt, and these spices could only arrive in that country after long transport and repeated handling, which must have made them very costly".

"The ancient Egyptians, no less than their contemporaries in Mesopotamia, used the spices to make unguents, perfumes and holy oils. About 2500 B.C., Pharaoh Sankhkere sent ships to the land of Punt, which seems to have been the regions on both sides of the Lower Red Sea and the Gulf of Aden, and in 1500 B.C., the Egyptian queen, Hatshepsut, sent an expedition of five ships down the Red Sea to this land for aromatics. According to her records, the ships took on board a goodly cargo of 'fragrant woods of God's land, heaps of myrrh-resin, of fresh myrrh trees . . . cinnamon-wood, with incense, eye-cosmetic . . .'. All these fragrant substances were necessary in their way of life and for their rites and ceremonies. The dead were anointed with holy oils, and scented unguents had their place in Egyptian funeral ritual".

Among numerous other references to the use of spices in the ancient world, Herodotus recorded that during the 20 years required to put together the 2,300,000 blocks of stone in the Great Pyramid of Gizeh, the 100,000 men who labored constantly on the project, and

were relieved every three months by a fresh lot, lived on a diet made up largely of garlic and onions in addition to radishes. And the Medical Papyrus of Thebes, written in 1552 B.C. and discovered by a German Egyptologist the latter half of the last century, lists several hundred remedies, among the identified plants of which are the names of coriander, caraway, sesame and saffron.

The ancient cities of Thebes, Memphis and Coptus for a long time were important as marketing and distributing centers for these spices. Eventually they were succeeded by the great city of Alexandria which became the leading emporium for trade in Oriental spices. It retained that position until the ascendancy of the Portuguese in the 16th century A.D.

SPICES IN THE HOLY BIBLE

In the Holy Bible spices are mentioned in numerous places, especially in the Old Testament, both specifically and in general terms, beginning in the Book of Genesis, chapter 37, with the spice merchants who bought Joseph from his brothers in the year 1729 B.C. The final mention is in the 18th chapter of The Revelation of St. John the Divine where the fall of the great city of Babylon is foretold with its concomitant cessation of trade in "cinnamon, and odours, and ointments". Between these first and last allusions are others to balm, myrrh, coriander, sweet calamus, stacte, onycha, galbanum, frankincense, cumin, mint, anise, cassia and cinnamon. A great part of Solomon's wealth was derived from "the traffick of the spice merchants", and wealthy King Hezekiah of Judea owed much of his riches to "silver, gold, precious stones, and spices". These various spices were employed to make food more palatable and in the preparation of perfumed ointments and oils for religious ceremonies. Of them all, cassia and cinnamon were

held in highest esteem by the Egyptians and Hebrews.

CASSIA AND CINNAMON IN THE ANCIENT MIDDLE EAST

"Cinnamon formed part of the aromatics used by the Egyptian queen, Hatshepsut, some 3,500 years ago, and . . . cassia was employed in ancient Egypt to embalm the dead . . . cassia and cinnamon were ingredients of the holy anointing oils and perfumes used in the ritual of the tabernacle erected by Moses in the wilderness of Sinai . . . cassia was in the market of ancient Tyre, and . . . cinamon was an item of merchandise in the old and magnificent city of Babylon".

But cassia and cinnamon did not grow in Egypt or in the land of the Hebrews. The first is native to China and the East Indies; the second to Ceylon and the nearby Malabar coast of India. How, and by which people, then, did these fragrant spice barks first reach the Middle East? Some may have come to the Egyptians and Hebrews by overland caravans, but such journeys of thousands of miles over mountain ranges and across inhospitable deserts, through what today are India, Pakistan, Nepal, Afghanistan and Iran, renders it more likely that they were transported by some seafaring nation, especially those spices which came from the Molluccas of the East Indies. The only peoples who could have engaged in such extensive maritime commerce were the Arabs and the Phoenicians, and when the activities and history of both these nations are considered, the evidence is in favor of the former.

"In short: The Phoenicians were indeed notable manufacturers and great traders, but they produced no aromatics of their own and dealt in spices only as they dealt in every other kind of merchandise moving between East and West. They were renowned sailors and un-

doubtedly made long voyages to eastern parts of the world in later centuries, but nowhere in their maritime history are they mentioned as importers of cassia and cinnamon. Fundamentally, the Phoenicians were not spice merchants, but general merchants ”.

“The South Arabians traded in aromatics from earliest times; other merchandise they also handled, of course, but spice trading was their mainstay. They were sagacious merchants, and long acquainted with sea trade ”.

“It was to Southwest Arabia and the neighboring coastal land of Africa that Egyptians came for aromatics some 4,500 years ago; it was Arabian merchants who carried spicery from Gilead to Egypt some 3,666 years ago, and it was from Arabia that the ships of Hatshepsut sailed with cinnamon to Egypt some 3,500 years ago ”.

“The South Arabians depended on the aromatic trade almost entirely for a livelihood. They traded their fragrant gums and resins in the Red Sea and in the Persian Gulf, and it is to be expected that they ventured on voyages of exploration in search of new spices to meet the growing demand in the Middle East for aromatics. We cannot point to them having made long coastal voyages to the East in very early times anymore than we could to the Phoenicians, but we can clearly see why they, rather than the Phoenicians, should have made such voyages. The cinnamon which was employed by the Egyptian queen, Hatshepsut, in 1500 B.C., and the cassia and cinnamon which the Israelites used in the rites of the tabernacle in 1490 B.C., all had to come from spice lands farther east, and it is only reasonable to conclude that these fragrant barks came into the Middle East by way of a spice-dealing people; and no people in all the Middle East excelled the Arabians as spice merchants ”.

“The whole coastal region of Arabia from the Persian Gulf through Hadra-

maut to the Red Sea knew the traffic of the Arabian spice merchants. From her most ancient people, through the Minaeans and Sabaeans to the Himyarites, the aromatic trade of South Arabia endured. The Sabaeans sent their ships overseas for spices and, for centuries, these people successfully monopolized the trade in cassia and cinnamon between eastern spice lands and the Middle East. They cleverly concealed the true source of cassia and cinnamon, and traded these fragrant spice barks to great advantage in all the markets of the Middle East ”.

“In conclusion: Spices were indivisible from the lives of the South Arabians; they were their heritage and their mainstay. South Arabians were traders and sailors from earliest times and, by necessity, must have sought new sources of spices to meet the great demand of Middle East peoples. Cinnamon was early associated with their name, and cassia and cinnamon were imported and distributed exclusively by them for centuries. There can be no doubt that they were the founders of the trade with Eastern spice lands which brought the first cassia and cinnamon to the Middle East ”.

“So, through a chain of traders, the cassia of Cochin-China probably made its way to Southern India, or the island of Ceylon, from where it was conveyed, together with the Malabar cinnamon, in Arabian vessels to the Persian Gulf. Some cassia and cinnamon must have been landed at Oman and from there transported by camel train to Arabia Felix for the trade with Egyptians and Hebrews and some was carried to the head of the Gulf for transportation into Babylonia and Assyria by way of the Tigris and Euphrates rivers ”.

THE ARABIAN SPICE TRADE

“South Arabia became the great spice emporium of the ancient world, and South Arabians, the clever, mystifying

masters of a very lucrative trade in domestic and imported spices. It was not their intention to let outsiders learn too much about their activities, and to hide their trade secrets, they invented and spread some very fantastic tales, particularly in regard to the origin and production of the highly desirable and costly spice barks, cassia and cinnamon". These weird accounts have been handed down to us by Herodotus, Theophrastus and Strabo, and appear to have been accepted by them. They held that the spices were produced in Arabia, an idea that prevailed until attacked by the Roman naturalist Pliny the Elder who claimed that 'Arabia produces neither cinnamon nor cassia' and then recorded and blasted the ancient myths. Pliny was wise to the wily Arabian spice merchants and knew that they had been bluffing all along; that they did not produce cassia and cinnamon in their country; and that for centuries they had told ridiculous stories in order to keep up the price of their barks. Erudite as he was, however, Pliny did no more than substitute one fallacy for another, for he claimed that "cinnamon grows in the country of the Ethiopians . . . cassia grows not far from the plains where cinnamon is produced"!

"Pliny also mentions ginger and cardamom as products of Arabia, and apparently he had heard that some cardamom grew in India, but actually he had no more idea of the true origin of these spices than he had of cassia and cinnamon. We can be sure that the Arabians imported ginger and cardamom together with cassia and cinnamon, and that all these spices were part of their great and wisely protected trade in overseas aromatics. Considering the nature of all four products, it is understandable why they traded in them to the probable exclusion of pepper, which they left to others. Pepper had little to recommend itself to the people of those days, if we judge by the disparaging re-

marks of Pliny which we shall read later, whereas the others had a desirable fragrance particularly suited to the nature and customs of the people of the Middle East".

"Pliny contemptuously dismissed Arabia as the land of spices, but, nevertheless, Arabia was, in his day and had been for centuries before him, the spice emporium of the ancient world. Its trade was immense, lucrative, and well organized. The Arabs were astute and competent, and the hold they had gained on the spice trade before the days of Herodotus, they maintained long after the days of Pliny".

USES OF SPICES IN THE ANCIENT GREEK AND ROMAN WORLD

"In war and peace, palace and hovel, temple and arena, fact and fable, the spices had their part in the lives of the people of the ancient Greek and Roman world. In preparation for the passage of the Persian armies, soldiers burned all kinds of spices on the bridges built by Xerxes across the Hellespont, during his war against the Greeks in the 5th century before Christ. The soldiers of Alexander the Great, marching through Gedrosia from India, used spice plants for tent coverings and bedding. Laurel leaves decorated the weapons of Roman soldiers and adorned their fasces; and in them, Roman generals wrapped their dispatches. In the social life of the ancient Greeks and Romans, spices were the essence of personal luxury; and an important part of public functions, banquets and parties. Cardamom, cassia, cinnamon, and sweet marjoram were among the ingredients of their perfumes; and anise, basil, fennel leaves, coriander, and garlic were among their aphrodisiacs. Spice-scented oils to soothe the skin were a part of the routine of the bath, and used by athletes to anoint the body. Their wines were flavored with spices, and among their kitchen implements, they had mortars

and pestles in which to pound and powder the spices they used in cooking. Laurel leaves formed the wreaths with which the victors in the sacred games were crowned. Costly spices were among the most desirable of gifts, just as they had been in the days of Sheba and Solomon; cassia and cinnamon, for example, formed part of the royal gift presented by Seleucus I to the temple of Apollo at Miletus. Spices, and oils perfumed with spices, were placed in the temples for the acceptance of the gods. Spices were an important source of revenue for the royal coffers, and in the time of the early Ptolemies, their import was under royal control, as was also the manufacture of scented preparations from them, and the extraction of sesame oil. In medicine, the spices were used to heal the sick and the wounded; and they were employed lavishly in the funeral rites of prominent people".

"Most of the spices used by the people of today were known to the ancient Greeks and Romans. Anise was used in the kitchen for the making of seasonings, relishes and sauces, and together with cumin in the making of a cake which was customarily eaten by the Romans at the end of a meal to prevent indigestion. They considered aniseed excellent for flavoring wine. It was used to sweeten the breath, promote the appetite, as an aphrodisiac, and also as a moth repellent. In Pliny's day, the most esteemed anise was that of Crete, with Egypt supplying the next best in quality. Sweet basil was probably used for culinary purposes in those days, but all we know for sure is that it was used as an aphrodisiac, 'for which reason', says Pliny, 'it is given to horses and asses at the season for covering'. Caraway was principally employed for culinary purposes. Cumin found favor as a food seasoning and, with coriander, it was employed for preserving meat. Fennel was extensively employed in sea-

sonings and to flavor sauces made with vinegar. The leaves of fennel found favor as an aphrodisiac. Garlic was a popular food and seasoning. According to Pliny, it was a dish of 'high rank' to the rural population of Africa. Beaten up with coriander, and taken in pure white wine, it was also used as an aphrodisiac. Ginger was employed in the kitchen to flavor meat dishes and to season relishes and sauces. Mint was a favorite food seasoning, and was used to flavor meat sauces. It was added to milk to prevent its turning sour, and to keep it from curdling. Like aniseed, it was employed to flavor wine. Peppermint sprays decorated the banquet tables, and both Greeks and Romans crowned themselves with it at their feasts. Mustard was a condiment, used, it would seem, in much the same way as we employ it today. Thyme was employed to flavor cheese and liquor. It was also used for fumigating".

"Both black and white pepper were employed in the kitchens of the ancient Greeks and Romans. When pepper first came into use in those parts, we do not know, but Theophrastus spoke about two kinds of pepper some 400 years before the publication of Pliny's *Natural History*. Pliny distinguished between black and white pepper and observed that the black 'is of a more agreeable flavor; but the white pepper is of a milder quality'. He did not have a very high regard for this spice".

In the realm of superstition and medical application the ancients entertained some strange notions about spices, and attributed weird and specific properties to each kind of spice. "Many of the fantastic claims, made for the medicinal virtues of the spices in those days, endured through the centuries to find their way into the leechbooks and herbals of the Middle Ages, and some have endured until this day".

SPICES IN THE EARLY CHRISTIAN ERA AND MIDDLE AGES

"In the closing centuries of the pre-Christian era, sea trade between the Middle East and India began to increase rapidly. We have seen that the Arabians enjoyed for centuries a monopoly of the trade in Eastern spices which had not terminated by the time of Pliny. They were able to keep secret the true source of cassia and cinnamon, but it is not likely that they were able to keep secret the long voyages they were making to the East. Their trade expeditions must have been known to the international traders of Alexandria, even if the nature of their cargo was not. And it is certain that these merchants were watching them very carefully, and making plans to get into the Eastern trade themselves. These plans seem to have matured during the reign of Ptolemy Philadelphus (285-246 B.C.). The ancient canal which connected the Nile with the Red Sea was reopened, permitting entry to the Arabian Sea of Ptolemaic ships and those of the merchants of Alexandria, and trade between Egypt and India began. By the time of Strabo, as we have seen, there were regular sailings of large fleets of ships from the Red Sea".

An important factor in the development of this trade was the discovery of the monsoons, and both Arabians and Egyptians very likely took advantage of these favorable winds in traveling between their homelands and India. Until the ascendancy of the Portuguese in the 16th century the Arabians remained active and dominant in the spice trade, despite their loss of a monopoly in the trade after the Romans conquered Egypt in the century before Christ and took over the sea trade started by the Ptolemies.

"During the first three centuries of the Christian era, trade between the Roman empire and the east, particularly

India, became quite extensive, both by land and water. The spices of India made their way by the Red Sea to Cop-tus, Memphis, and Alexandria; and from Alexandria, they were distributed to Greece and Italy. The Arabians were actively engaged in this spice trade, and cinnamon, ginger, and pepper filled the cargo holds of their vessels. The demand for spices was very great, and to the Romans they were an important source of revenue. At the Roman custom house at Alexandria, imported goods were scrutinized and taxed, and cassia and cinnamon were among those on which tribute was levied".

"By the end of the third century at the latest, the Arabians had developed direct sea trade with China, and, in addition to China's cassia, they were probably obtaining spices from Chinese merchants which had come from the East Indies. Envoys from Java were reaching the court of China during the Han Dynasty, 206 B.C. to A.D. 220, and it is most likely that as a result, trade was carried on at that time between the two countries. During the Han Dynasty, it was the practice for those addressing the Emperor to perfume the breath by holding cloves in the mouth, and the cloves had to come from the East Indies because they are not a product of China".

The great importance of spices to the peoples of Europe in the following centuries is especially well illustrated by the ransom extracted from Rome early in the fifth century when it was besieged by Alaric, king of the Goths. Part of the ransom was 3,000 pounds of pepper, showing that this pungent spice was not less valuable than gold or silver, and that large quantities of it must have been reaching Europe at that time. In the Middle Ages, when the merchants of Venice waxed wealthy from their trade in Oriental spices and other goods, there were recorded in ecclesiastical literature

various gists of cinnamon, cumin and pepper. And in the 12th century there was a Pepperers' Guild in London.

SPICES IN THE TRAVELS OF MARCO POLO

The great tale of travel which Marco Polo, as a prisoner of war between Venice and Genoa in 1298, related to a scribe contains numerous allusions to spices, some in general terms, others specifically to sesame-seed oil, ginger, cassia, clove and pepper. Most important of these was pepper, and in the city of Hangchow, Polo related that the daily amount of this one spice brought in was 43 loads, "each load being two hundred and forty three pounds, or a total of 10,449 pounds"! Similar trade was carried on at other points. Kublai Khan, the emperor, derived a handsome profit from this immense trade, "and the spice merchants made a most respectable profit despite cutoms, freight, and other charges which amounted to fifty per cent of the value of the pepper cargo".

"Of the spices noted on his voyage home from the Straits of Malacca, Marco Polo mentions cloves in the Nicobar Islands, oil of sesame in Ceylon, and an abundance of pepper, ginger, and cinnamon on the Malabar coast of India".

"It is a strange and interesting thing that Marco Polo does not mention cinnamon when speaking of Ceylon. The finest and most fragrant cinnamon, from *Cinnamomum zeylanicum*, is native to Ceylon, but, for some unknown reason, its presence on the island seems to have remained unnoticed until the late 13th century when it is mentioned in the work of an Egyptian historian. In fact, apart from Marco Polo's reference to sesame, he does not mention spices at all when describing this island, yet the spice trade of Ceylon had been noted by previous travelers".

"Marco Polo also tells us of the use of

oil of sesame in Abyssinia; of the port of Aden, 'frequented by ships arriving from India with spices and drugs'; and of a city named Kalayati situated three hundred miles southwest of Hormuz, where many trading vessels arrive from India loaded with spices which they sell to great advantage".

SPICES AND THEIR USES IN THE LATE MIDDLE AGES

"By the 13th century the East Indies were the scene of a thriving trade in spices. Java was the principal spice-trading island, and Javanese traders brought the cloves, nutmegs and mace from the islands of the Molucca groups for distribution to the world. Numerous Chinese junks reached the coast of Borneo and, from there, traded among the clove and nutmeg islands. From Java, Arabian merchants sailed west with their ships laden with pepper, cloves, nutmegs, mace, cassia, and ginger, in addition to their spice trade with southern India; and Chinese merchantmen carried pepper, cloves, nutmegs and mace to the ports of China. The East Indies gradually eclipsed the Malabar coast of India as the most important source of costly spices, and both places attracted the princes and merchants of western Europe to bring, in the 15th and 16th centuries, the greatest and brightest age of discovery the world has ever known".

"China continued to export her cassia, of which large quantities grew in Kwangsi province and Cochin China, to the west. Her ginger probably went no farther than neighboring Burma and the eastern provinces of India. Burma was not a producer of spices, but a consumer of no small account, if we believe the contents of an ancient inscription which says that the 13th-century king Narithihapate ate three hundred dishes of curry daily".

"The consumption of spices was

steadily increasing in the west, and in the fairs of Europe and England, oriental spices were regularly obtainable. In 13th-century England, mace was four shillings and sevenpence per pound, ginger one shilling and sixpence, pepper one shilling, cassia tenpence, and cumin two-pence. These were high prices in those days, but understandable when we consider the long and hazardous voyages and overland journeys from the East, and the number of hands through which the spices passed ”.

“ There is little mention of spices in the next century. In 14th-century England, spices were still exacted as tribute or taxed for certain purposes. For example, in the reign of Edward I, we find that anise was among the commodities taxed to raise the funds required to defray the expense of repairing London Bridge. A new guild of Pepperers was organized in London in 1345. The Pepperers were among the wealthiest of merchants, and one had to be a pepperer of Soper Lane or a spicer of Cheap, in good standing, to belong to the fraternity. Cinnamon, pepper, and other spices were conveyed to the warehouses of the spice merchants by street porters, whose charges were a matter of agreement between themselves and the Pepperers Guild. Cassia buds were mentioned in this century: they were sold in London at eight to thirteen shillings per pound. Pepper increased in price to two shillings per pound ”.

“ Most decidedly, the spices were beyond the poor folk of those days, but the situation could hardly have been otherwise. All Europe depended on the Orient for pungent and fragrant spices: cloves, nutmegs and mace came from the Moluccas; pepper from southern India and Java; cassia from China and the East Indies; cinnamon from Ceylon and Malabar; and ginger from Malabar and perhaps the East Indies. And because there was no Suez Canal and no known

road to the Orient, except through the lands of the Middle East, Europeans could not trade directly with those places ”.

“ The Arabs practically monopolized this trade in eastern waters, and the merchants and bankers of Venice controlled the spice trade in the Mediterranean. After leaving the hands of the native producers, the spices passed through numerous dealers before they reached the markets of the Black Sea and the Eastern Mediterranean, and with each change of ownership came an addition to the cost ”.

“ The balance of trade was in favor of the Orient, and to pay for the spices of the East, Europe shipped her gold and silver through Venetian banks, making the already wealthy merchants of Venice wealthier and adding to the fortunes of the royal coffers of the Middle East. But the people of the West were learning. Merchants and bankers in western and northern Europe were growing slowly more powerful; shipyards were building better ships; inquiring minds were busy; and eager, searching eyes were scanning the maps of the geographers ”.

Preservation of food in those days depended on salting, drying and smoking, all of which must have resulted in very insipid food, the unpleasant flavor of which could be alleviated only by use of spices. “ In the peasant home, we would not find the costly spices of the East. But in the kitchens of the great, every chef had his own ideas of seasoning and flavoring and every master his favorite spice. They used small, fragrant sticks of cinnamon and the delightful little clove buds to garnish dishes; pepper, cloves, ginger, mace, and onions stuck with cloves were common ingredients of pottage; clear soups were strained through bunches of fragrant herbs; anise, mint, and parsley were among the spices held best for gravies, sauces,

and relishes; dill flavored their vegetables and, in the later centuries, was used for pickling cucumbers; caraway and cumin flavored their soups; cheese, bread, and cakes were used in the preparation of dainties; fennel and coriander seeds were sugared and eaten as confections; oil was expressed from nutmeg and mace to flavor a dainty butter; cassia, cinnamon, cloves, nutmeg, mace, ginger, anise, sweet marjoram, thyme, and savory were employed to flavor puddings, tarts, pastries, cakes, and conserves; and rosemary, nutmeg, cinnamon, fennel, coriander, anise, cloves, and ginger went into the preparation of their many kinds of beverages, wines, and liquors".

"Throughout the Middle Ages, the medicinal uses for the spices were not dissimilar from those of the ancients. The Anglo-Saxons turned to the herbs for most of their remedies, and in their leechbooks are found the names of many spices. In the *Herbarum Apuleii Platonici*, said to be a 5th century work, but published in the 10th century, we find mention of coriander, dill, fennel, mint, marjoram, parsley, and sage".

The therapeutic qualities attributed to spices in the leechbooks and herbals of the Middle Ages were fantastic, and the importance of spices toward the close of that period is carried down to us in at least three famous pre-Columbian books—The Canterbury Tales, the Decameron of Boccaccio and The Arabian Nights.

THE PORTUGUESE SEEK THE SPICE ISLANDS

"In the 15th century, the spice trade of the East and Middle East was dominated by Moslem merchants. Their Eastern pivotal points were Calicut, Colombo, and Malacca. In the Middle East, their greatest markets were Constantinople and Alexandria. Spices bound for Constantinople from India

and the Far East went by way of the island of Hormuz in the Persian Gulf; those for Alexandria by way of the Red Sea and the ancient city of Mecca. In the Mediterranean, the Venetians were the undisputed masters of the spice traffic moving between Middle East centres and European points".

"The Middle Ages had witnessed the steady rise of Venice in commercial and maritime importance. From her favorable situation at the head of the Adriatic, between East and West, she had been of strategic importance in the affairs of many nations, and had fattened on the territorial and trading concessions which she had exacted as her reward. Her merchants and bankers were in every sizable port in the Mediterranean and the Middle East, from her own great city and the ancient port of Alexandria to the glittering city of Constantinople. Genoa had battled her only to be defeated at Chioggia in 1380 and to lose what she had attained as a maritime power. Venice was predominant, absolute controller of the Mediterranean trade and she was detested by the powers of western Europe".

The predominance of Venice in this very lucrative trade was destined, however, to be broken by various influences of the Renaissance, particularly by the voyage of the Portuguese, Bartholomew Diaz, in discovering the Cape of Good Hope. That same year Pedro de Covilham left Lisbon "and went east by way of Barcelona, Naples, Cairo, and Aden. At Aden, he embarked on a Moslem ship and crossed the Arabian sea to Cannanore, from where he went to Calicut. In Calicut, he saw large quantities of pepper and ginger and heard that other spices were brought there from more distant places. From Calicut he went to Goa and then to the island of Hormuz in the Persian Gulf, where he saw a great trade in spices. Having noted carefully all he had seen and heard in

India and at Hormuz, he returned to Cairo and sent a full report to Lisbon".

From 1497 to 1499 Vasco da Gama and his valiant men became the first Europeans to reach India by an all-water route. They, too, "found Calicut the centre of a region producing cinnamon, ginger and pepper and, like Covilham before them, learned that many other aromatic and pungent spices came to this port from more distant spice lands".

"When the news reached Venice, that city was shocked. Following on the discovery of Diaz, this voyage of da Gama was a serious matter. The merchants and bankers of Venice knew only too well what this news meant. Following the conquest of Constantinople by the Turks, the Venetians had brought their spices from the east by way of Egypt. Thus the news of the Portuguese success was equally shocking to the Egyptians. For the Sultan of Egypt, it meant the loss of the large revenue which he obtained from the movement of spices through his kingdom. Altogether, it was a bad day for the merchants and princes of Venice and the Middle East: Spices were making history"!

CHRISTOPHER COLUMBUS SAILS WEST TO FIND THE SPICE ISLANDS

Columbus did not have any botanically trained person with him on his visits to the New World in search of the spice islands of the East, and in his notes he much regretted his own inability to pass judgment on the profusion of new plants which he found. The only plants that suggested the spices of the Orient were the native capsicum peppers and a kind of bark, known today as "white cinnamon" (*Canella winterana*), which has a slight aromatic odor resembling that of true cinnamon. In some manner, however, he succeeded in persuading the King and Queen on the basis

of this very meagre evidence that a second voyage in further search of the elusive spices would be worth the investment.

On his second expedition, on the island of Marie-Galante in the Leewards, "he found a tree whose leaves gave off the fragrant aroma of cloves. . . . There can be little doubt that the tree they found was a species of the genus *Pimenta*, native to the West Indies and adjoining mainland of Central America and belonging to the same family as the clove. It was, most likely, *Pimenta racemosa*, common to the Leeward and Virgin Islands, but it may have been *Pimenta officinalis* or allspice, which is much more abundant in the island of Jamaica. Being November, the tree would not be in fruit, and this is probably the reason why a conclusion was reached so quickly and the tree so promptly forgotten".

"If the tree they found was an allspice tree, this would be the first European contact with a tree whose fruit has been one of the most desirable of all aromatic and pungent spices for over 300 years. Columbus was so eager to find spices that it is difficult to believe that the abundant allspice of Jamaica should have escaped his notice when he reached that island later in his explorations, yet this seems to be the case. It is understood that this spice was unknown to Europeans in Columbus's day and that Columbus could not inquire about a spice which to him did not exist, but had he found the natives using this spice or had he gathered it from the allspice trees of Jamaica, he would most certainly have carried it back to Europe as a new spice or, because he had 'no knowledge of these products', as a species of clove since its aroma is similar to that of the clove. In the face of his repeated references to his lack of knowledge of plants, and spice plants in particular, it would not have been an unreasonable mistake for him to have

made. Later Spanish explorers were perhaps not better informed and they found the spice, but apparently thought it was a species of pepper and called it *Pimienta*, which accounts for its botanical name, *Pimenta officinalis*, and its other common names, pimento, Jamaica pepper, and clove pepper ”.

When Columbus died in 1506 “ he had not reached the glittering courts of Eastern empires, nor smelled the fragrance of the spices which grew on the tropical isles of the Eastern Sea. For him, there had been no aromatic and pungent cloves, ginger, nutmegs, or mace; no fragrant cinnamon or cassia, not even a decent pepper! But the spices of the East Indies had led him to the West Indies, and to the land of America where his name is honored ”.

“ The discoveries of Christopher Columbus opened the West Indies to the trade and commerce of the world and it was not long before the spices of the East were introduced into the West. Today, the world’s finest ginger comes from Jamaica and the nutmegs and mace of Grenada are exported to all parts of America and Europe. The capsicum spices of the New World were introduced into the Old World, and today these useful peppers are cultivated in many parts of Europe, in Africa, India, East Indies, Japan, and other distant lands ”.

THE PORTUGUESE MASTER THE SPICE TRADE

After John Cabot, born in Genoa and later a citizen of Venice, made his vain attempts under English auspices to reach the land of spices by following a northern route to the New World, the Portuguese began to consolidate their gains acquired through da Gama. First, under the command of Pedro Alvares Cabral and confronted by some fighting and other difficulties, they established spice-trading factories at Calicut, Cannamora

and Cochin on the Malabar Coast of India. “ The new spice trade was definitely under the control of King Emmanuel, and the factories were royal factories manned by royal officers who dispatched the spices of India to Portugal in royal ships. The kings of Portugal were not different from the ancient kings of Egypt in keeping control of the all-important and highly profitable spice trade ”.

In the succeeding years of the early sixteenth century the Portuguese continued to strengthen their gains toward controlling the spice trade. They gradually superseded the Moslems, who had so long monopolized the traffic, and they finally brought complete ruin to Venice, first by discovering the prime source of her trade in spices—the famed Spice Islands of the East Indies—and then by controlling them. “ The Portuguese lost no time in consolidating their position in the East Indies. They were securely entrenched at Malacca and effectively commanded the strait, and they built forts at Amboyna, Halmahera, Celebes, Ternate and Tidore, where they had spice-trading factories. They were not very successful in protecting their interests in the Banda Islands, and because of the persistent, and at times violent, opposition of the natives, they were not able to fortify adequately the large islands of Sumatra and Java. On the island of Sumatra, the Moslem natives doggedly fought the Portuguese for the control of the pepper trade of the island, particularly in the north. On the island of Java, similar conditions obtained. The hatred which existed between the Christian invaders and the Moslem defenders cannot be overemphasized, and almost everywhere they went, the Portuguese met with cunning, subterfuge and frustration, if not violence. But the Portuguese were not deterred and went steadily ahead with their program of exploitation of the East Indies. Native junks were

found in the south China Sea, along the coast of Borneo and the Banda sea and, in the interest of monopoly, the Portuguese resorted to all sorts of methods to curtail these island traders. They did not intend that any spices should leave the East Indies except in Portuguese ships ”.

“From Malacca, the Portuguese reached out to Burma, Siam, China and Japan. Long pepper grew in the forests of Burmese Tanasserim, black pepper in Siam, but these countries did not export their meagre spices at that time, and the Portuguese saw them more as potential markets ”.

“The Moslems and Venetians throttled, the Portuguese now held a strangle-hold on the spice trade in Europe. The price of pepper and other spices began to soar in all parts of Europe and resentment grew as strong against the Portuguese as it had grown against the Middle East monopolists before them. Other European powers sought a means of breaking the grip of Portugal on the spice trade of the Orient, and intrepid mariners presented themselves at the courts of Europe with plans which would carry them to the Spice Islands and open a way for these powers to share in the great spice wealth of the East. Magellan sailed for Spain; Drake, Fenton, Cavendish, and Lancaster, for England; and before the 16th century slipped into the past, Van Houtman for Holland ”.

MAGELLAN'S QUEST AND FURTHER ATTEMPTS BY THE BRITISH

In September, 1519, Ferdinand Magellan, spurned by his own Portuguese king, sailed under the Spanish flag to seek a westward route to the Indies. Two years and nearly two months later, after enduring untold hardships and discovering the Straits that were ever after to commemorate his name, two of his ships entered the port of an island called Tidore. By that event the famed Spice

Islands were finally reached by a westward journey around the earth. Magellan did not live to see the accomplishment of his mission, for he had been killed in combat in the Philippines six months earlier.

This fateful event deprived Magellan of personally enjoying the glory that would have been his upon later returning to Spain, but it was fortunate for later generations that one Antonio Pigafetta, a member of his staff, survived the journey. Pigafetta was an Italian gentleman and scholar who kept a faithful account of all that he saw and heard, and it is to him that we today are indebted, not only for information regarding the terrific hardships of the expedition as a whole but more particularly for his description of the cloves, nutmegs, ginger and cinnamon which the survivors found in the islands that they visited. The crew bargained for these commodities and gave in exchange agreed upon quantities of cloth, scissors, knives, looking-glasses and articles of brass and copper.

Under the command of Sebastian del Cano, Magellan's ship Victoria returned to Spain with a load of spices three years after having departed on the journey that was to accomplish the first circumnavigation of the earth, to observe for the first time the gain or loss in time by such a voyage, and to reach the great spice emporium by following the setting sun. “The cloves were sold at a most handsome profit, and Charles V of Spain was well pleased. He honored Sebastian del Cano with a coat of arms which included in its arrangement two cinnamon sticks, three nutmegs, and twelve cloves. He also gave him a very good pension. The golden trail of the spices was more brilliant than ever ”!

Next the British, spurred by Magellan's conquest, endeavored to reach the Spice Islands by the Northeast Passage, around the North Cape of Europe, and

by the Northwest Passage which, it still was hoped, lay some where in North America. While all this was going on, "the Portuguese were waxing fat from their prosperous spice trade in the East Indies. They had obtained a share in the trade of the Javanese city of Bantam, from where three and a half million pounds of pepper were shipped yearly to China and India, and they had successfully concluded treaties with the Sultan of Brunei which not only opened up the pepper trade of Borneo, but enabled them to follow a better route from Malacca to the Moluccas and trade with the island of Celebes. Malacca had become a great spice-trading centre, to where all ships, large and small, that sailed the East Indian waters were bound to go and pay customs to the Portuguese. From this port, the Portuguese monopolized the clove trade of the Moluccas and the nutmeg and mace trade of the Banda Islands. But they had never known real peace with the natives. In the great pepper land of Northern Sumatra, the Achinese king stoutly opposed them and successfully carried on trade in pepper and other spices with Moslem merchants from Mecca. Moslem traders in Java steadily sniped at their trade with the Spice Islands, and shipped cloves, nutmegs, and mace to the Red Sea. Portuguese rapacity brought about an uprising in the Moluccas and in 1574, their fortress at Ternate fell to the Moslems. Then, in 1579, Francis Drake came, not by a northeast or northwest passage, but in the track of Magellan. It was the beginning of the end of the Portuguese monopoly of the spice trade of the East".

In September, 1580, Drake returned to Plymouth, England, in his famous ship, the *Golden Hind*, and brought with him a load of spices. Other Englishmen followed Drake in Britain's effort to reap profits from the lucrative spice trade of the Indies. "But it was not the English who broke the power of the Portuguese in the East Indies; they concentrated

more on India. It was the Dutch. The merchants of Holland were an enterprising lot and they were every bit as keen as the London merchants to reach the Spice Islands. In fact, they were determined to get their share of the highly profitable spice trade; they were already at war with Spain and they were prepared to fight the Portuguese in the East Indies if necessary. In 1595, they supplied the ships and money to send an expedition to the East Indies under Cornelius Van Houtman, and in 1596, the shadow of the Dutch fell across the Portuguese in Bantam".

THE DUTCH AND THE ENGLISH

In 1597 Van Houtman brought home three shiploads of pepper and nutmegs. Only 89 of the 284 men who had sailed from Holland returned, so costly in lives had the expedition been as the result of scurvy and other hardships. "The success of Van Houtman fired the imagination of the people at home and stimulated the merchants of Amsterdam into immediate action. The pepper and cinnamon of Sumatra, Java, and Borneo; the cloves of Ternate, Tidore, Amboyna, and other islands of the Moluccas; the nutmegs and mace of the Banda Islands—all were now within reach. Ships were speedily made ready for the long voyage, manned with sturdy sailors, officered with competent, daring navigators, and staffed with discerning officials. In the year 1598, no less than five expeditions left Holland for the East Indies; all told, there were twenty-two ships, thirteen of which followed the Cape route, and nine attempted the passage through the Straits of Magellan".

These expeditions "made a good impression on the native sultans, opened trading stations, and generally laid the foundation for the future domination of the East Indies by the Dutch. The spices were making history and it was a bad day for the Portuguese".

"The story of the spices in the 17th

century is the story of the decline and fall of Portuguese power in the East and of the conflict between the Dutch and English for the mastery of the spice trade ”.

As part of this struggle, and angered by the high prices demanded by the Dutch, the English established the famous East India Company for developing their part in the spice trade. In September, 1603, one expedition dispatched by this company “brought to England enough pepper to break the Dutch hold on the market We do not know what the market for cloves was at that time, but history records that a shipload of cloves purchased in the Spice Islands for £2,948 in 1606, brought the sum of £36,287 when sold in England two years later ”.

In order to meet this threatening competition, the Dutch merchants of Amsterdam, who had been fighting among themselves as well as against the English and Portuguese for control of the trade, banded together and formed the equally famous Dutch East India Company. After battles with the Portuguese, the English and the natives, the Dutch merchants eventually gained control of the producing regions whence came the pepper, cinnamon, cloves, ginger, mace and nutmeg which they all were striving to monopolize. In 1621 they were in a position to change the name of Jacatra, on Java, to Batavia. Some time thereafter, “from the Dutch headquarters in Batavia, a directive was issued affecting the cultivation of clove and nutmeg trees in the East Indies. On all islands, except those of Amboyna and Ternate in the Moluccas and the Banda group, clove and nutmeg trees were ordered extirpated. This wilful destruction of trees, which require years to bring their spices to fruition, reduced the production of cloves, nutmegs, and mace to one-fourth of that before the coming of the Dutch to the Indies. This was the Dutch method of creating a scarcity of these

fragrant and highly desirable spices to force their prices up in the European markets for the benefit of the directors and shareholders of the Dutch East India Company ”.

At the close of the 17th century the Portuguese spice trade in the East Indies was crushed, the English were left with but a remnant of their former trade, and the Dutch were “the undisputed masters of the East Indies, reaping the wealth of a great spice monopoly. The demand for Eastern spices had steadily increased in Europe and the trade was perhaps the most profitable in existence at that time. The number of uses for the spices in flavoring food and beverages, in medicine, cosmetics and perfumery had multiplied. Spices were sought after by all who could afford them. As in ancient times, the spices made treasured gifts between people. They were also sometimes presented to state dignitaries on special occasions and in festive seasons; offered as political bribes; given as bonuses to the dockworkers who unloaded the spice ships; bequeathed in wills; and used as rent. The term ‘peppercorn rent’ means today a nominal rent, but in those days it represented real value. Cinnamon was perhaps the most desired of all the fragrant spices, particularly the bark grown in Ceylon which had a value on the European market many times that of the Malabar product, or the cassia of the Far East. The trade in this spice was one of the most profitable of all to the Dutch East India Company, which did not hesitate to burn large quantities of the bark to keep its price high. Not only had the trading companies profited handsomely from their ventures into the East Indies, but the revenues of their respective countries had been materially increased by the import and export of pepper, cassia, cinnamon, cloves, ginger, turmeric, mace and nutmegs ”.

“Halfway through the 18th century, the tide of fortune began to change for

the Dutch East India Company. There were many reasons for this, but the principal were the steps taken by the French and British to break the Dutch monopoly by introducing spice plants into their own overseas colonies, the loss of Dutch possessions in India, the export of spices from India by the English East India Company, the British blockading of Dutch East Indian ports, and piracy and smuggling in the waters of the Indies ”.

“ The Dutch had angered Europe by making her pay dearly for cloves, nutmeg, mace, and cinnamon through their rapacious policy of curtailing production and creating artificial scarcities of these commodities. For a hundred years they had enjoyed naval supremacy in the Indies, and kept the foreigners from their spice-trading ports. But monopolies of this kind can be very harmful to the monopolists ”.

In the latter half of the 18th century, despite Dutch vigilance, the French succeeded in introducing cloves, nutmeg and cinnamon plants from the East Indies into the islands of Reunion, Mauritius and Seychelles in the Indian Ocean, and into French Guiana in South America. In Amboyna, however, according to one navigator, “ cloves were in such abundance that the Dutch authorities at Batavia sometimes ordered a large number of clove trees to be extirpated and fixed the number of trees that should be in production. Thus, by a resolution of the year 1768, they ordered that the propagation of the clove trees should cease till their number was reduced to 550,000; the number of trees both young and fruit bearing was then 759,040 ”.

“ According to this navigator, at the time of his voyage to the East Indies there were 3,000,000 pounds of cloves in the Dutch warehouses at Batavia, of which not more than 200,000 could be disposed of annually in the Indies. In addition to the cloves stored in Batavia, there was enough stock of the spice in

Holland to meet the needs of Europe for ten years. Such an abundance of cloves was a threat to the handsome market the Dutch strived to maintain and, consequently, large quantities of cloves were ‘ committed to the flames ’ from time to time by the Dutch East India Company ”.

“ Similar conditions existed in nutmeg production and quantities of this spice were also periodically destroyed by fire to maintain the Dutch monopoly ”.

In 1788 the British occupied the Malayan island of Penang, and about eight years later they successfully transplanted clove trees from the Moluccas into that island. By 1799 the ascendancy of the British had progressed to such a degree that the Dutch East India Company was dissolved, and “ the affairs of the Company were taken over by the Dutch government. The Dutch East India Company had been a progressive and powerful factor in the colonizing and trading affairs of the Netherlands for almost two hundred years; at the height of its prosperity, in 1669, the Company had one hundred and fifty trading ships, forty ships of war, one thousand sailors, and paid a dividend of forty per cent ”.

In 1818 the clove tree was introduced from Mauritius into Zanzibar, and today Zanzibar, with the adjoining island of Pemba, produce by far the greater part of the world’s supply of cloves. Later the nutmeg tree was successfully introduced into the West Indies. All these efforts over many years, together with territorial conquests by the British against the Dutch, completely destroyed the Dutch monopoly on spices in the East Indies.

“ It is now four hundred and sixty years since Bartholomew Diaz doubled the Cape of Good Hope in the search for an all-water route to India, so that Portugal might wrest from the Moslem traders, the Sultan of Egypt, and the merchants of Venice the profitable spice

trade of the Orient. And we have seen how greatly this spice trade has shaped the course of history since that time. It is difficult for us, who buy our supplies of pepper, cassia, cinnamon, cloves, ginger, mace, and nutmeg so casually and so cheaply, to believe that there was ever a time when these spices were so eagerly sought after and represented so much wealth and power that destiny itself was indivisible from them ”.

“The introduction of the highly valued spice plants of the East Indies into other countries and the maritime intercourse between east and west gradually changed the spice-production situation. Today, the East Indies, while still the largest pepper-producing center of the world, is no longer the great emporium for the fragrant spices it was in the days of the Dutch ascendancy. Nutmegs and cloves are still exported from the Spice Islands, but a far larger export of nutmegs is carried on from the island of Grenada in the West Indies and Zanzibar is the leading source of supply for cloves. The export of cassia from Batavia is not nearly as great as the export of the highly esteemed Saigon cassia from Indo China ”.

“Ginger was introduced into the West Indies by the Spaniards in the 16th century and today, Jamaica exports the finest ginger of all and by far the greater part of the world’s requirements; other ginger is exported in small quantities from Africa and Japan. China exports cassia and preserved ginger. Ceylon is still the only important exporter of the delightfully fragrant *Cinnamomum zeylanicum*; that produced in the Seychelles and some other places is not a factor in world trade ”.

“The Malabar coast ports export some of the world’s best pepper and also a pungent ginger. Burma is not a spice exporting country; the long pepper originally found in the woods of Tenasserim is now cultivated in Bengal, India and also in Java. Siam is today at her lowest point as a producer and exporter of pepper; in the 17th century, her pepper was the cause of contention and conflict among foreign merchants, but today nobody fights about it. The different varieties of capsicum peppers native to Central America were early introduced into Africa, India, East Indies, Japan, and other countries. Today, these peppers are exported in all sizes and varieties from many parts of the world.”

Utilization Abstracts

Peanuts. Considerable study has been devoted in recent years, particularly at the Southern Utilization Research Branch of the U. S. Department of Agriculture, to promoting greater utilization of peanuts. In a manner which defies abstracting here because of its very succinct though brief resume of this study, The Garden Journal of The New York Botanical Garden (Jan.-Feb., 1955) contains an excellent summary of this work.

Algae as Food. Perhaps no other potential aspect of plant utilization appeals so much to the imagination as does the possible supplementing of agricultural practice by large-scale cultivation of unicellular algae as a source of human food. Attention has been drawn to this in several past issues of ECONOMIC BOTANY. Two more contributions on the subject are contained in *The Scientific Monthly* (Jan., 1955).